

1. A rolling bearing for a roll neck, comprising:
  - an inner ring having an inner ring race at its outer peripheral surface;
  - an outer ring having an outer ring race at its inner peripheral surface; and
  - a taper roller disposed between said inner ring race and said outer ring race, and having a rolling surface that is brought in contact with the inner and outer ring races;wherein at least a first one of the inner ring race, the outer ring race, and the rolling surface, comprises a first portion with a formed film made of a manganese phosphate, and
  - wherein at least a second one of the inner ring race, the outer ring race and the rolling surface comprises a second portion on which there is disposed no formed film but which has a surface roughness of  $0.1\text{ }\mu\text{m}$  or less in terms of Ra, and further wherein said second portion comes into contact with said first portion.
2. A rolling bearing according to claim 1, wherein said first portion comprises a formed film having a surface roughness of  $0.3\text{ }\mu\text{m}$  or less in terms of Ra.
3. A rolling bearing according to claim 2, wherein said second portion comprises a surface roughness of  $0.07\text{ }\mu\text{m}$  or less in terms of Ra.
4. A rolling bearing according to claim 1, wherein said first portion comprises a formed film having a surface roughness of  $0.6\text{ }\mu\text{m}$  or less in terms of Ra.
5. A rolling bearing according to claim 4, wherein said second portion comprises a surface roughness of  $0.05\text{ }\mu\text{m}$  or less in terms of Ra.

6. A rolling bearing for a roll neck, comprising:
- an inner ring having an inner ring race at its outer peripheral surface;
  - an outer ring having an outer ring race at its inner peripheral surface; and
  - a taper roller disposed between said inner ring race and said outer ring race, and having a rolling surface that is brought in contact with the inner and outer ring races;
- wherein at least one of the inner ring race, the outer ring race, and the rolling surface, comprises a first portion which is comprising a smoothed formed film made of a manganese phosphate, and
- wherein at least a second one of the inner ring race, the outer ring race, and the rolling surface, comprises a second portion on which there is disposed either a formed film, or no formed film but a surface roughness of  $0.1\text{ }\mu\text{m}$  or less in terms of Ra, and further wherein said second portion comes into contact with said first portion.
7. A rolling bearing according to claim 6, wherein said first portion comprises a surface roughness of  $0.3\text{ }\mu\text{m}$  or less in terms of Ra.
8. A rolling bearing according to claim 6, wherein said second portion comprises no formed film but comprises a surface roughness of  $0.07\text{ }\mu\text{m}$  or less in terms of Ra.
9. A rolling bearing according to claim 6, wherein said second portion comprises no formed film but comprises a surface roughness of  $0.05\text{ }\mu\text{m}$  or less in terms of Ra.
10. A rolling bearing according to claim 6, wherein said second portion comprises a formed film of manganese phosphate having a surface roughness of  $1.2\text{ }\mu\text{m}$  or less in terms of Ra.

11. A rolling bearing according to claim 6, wherein said second portion comprises a formed film of manganese phosphate having a surface roughness of  $0.6\text{ }\mu\text{m}$  or less in terms of Ra.

12. A rolling bearing according to claim 6, wherein said second portion comprises a formed film of manganese phosphate having a surface roughness of  $0.3\text{ }\mu\text{m}$  or less in terms of Ra.

13. A rolling bearing for a roll neck, comprising:  
an inner ring having an inner ring race at its outer peripheral surface;  
an outer ring having an outer ring race at its inner peripheral surface; and  
a taper roller disposed between said inner ring race and said outer ring race, and having a rolling surface that is brought in contact with the inner and outer ring races,  
wherein each one of the inner ring race, the outer ring race, and the rolling surface, has a surface roughness of  $0.1\text{ }\mu\text{m}$  or less in terms of Ra.

14. The rolling bearing according to claim 13, wherein at least one of the inner ring race, the outer ring race, and the rolling surface, has a surface roughness of  $0.07\text{ }\mu\text{m}$  or less in terms of Ra.

15. The rolling bearing according to claim 13, wherein at least one of the inner ring race, the outer ring race, and the rolling surface, has a surface roughness of  $0.05\text{ }\mu\text{m}$  or less in terms of Ra.

16. The rolling bearing according to claim 13, wherein each one of the inner ring race, the outer ring race, and the rolling surface, has a surface roughness of  $0.05\text{ }\mu\text{m}$  or less in terms of Ra.

17. The rolling bearing according to claim 13, wherein at least one of the inner ring, the outer ring, and the taper roller comprises a low-carbon steel.